

**REMARKS**

Claims 1-10 remain pending in the application and are unchanged, with claims 1 and 6 in independent form. The specification has been amended to correct minor typographical errors caused, in part, by erroneous foreign translations. Thus, no new matter is added through the present Amendment.

Claims 1-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bank et al. (United States Patent No. 5,449,802) in view of Kleyer et al. (United States Patent No. 5,359,111). The Applicant respectfully traverses this rejection on the basis that the Examiner has not established a *prima facie* case of obviousness.

A description of the instantly claimed subject matter may be helpful to illustrate the distinctions between the instant invention and the prior art. The instant claims are directed to a method for the preparation of a halosilylated chain hydrocarbon, i.e., (3) or (4), produced by subjecting:

- (A) a diene-type compound and
- (B) a hydrogenhalosilane to a hydrosilylation reaction in the presence of
- (C) a hydrosilylation catalyst and
- (D) an ether compound having no aliphatic triple bond. Importantly, the halosilylated chain hydrocarbon (3) or (4) has no ether functionality. That is, (D) the ether compound having no aliphatic triple bond does not become incorporated in the final product, i.e., the halosilylated chain hydrocarbon (3) or (4). Rather, it is proposed that (D) the ether

compound contributes to the unexpected results obtained in terms of the absence of undesirable reaction byproducts, improved reaction speed, and improved reaction yield.

To summarize the relevant standards that the Examiner must apply in performing an obviousness analysis of the instant claims, 35 U.S.C. §103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1391 (2007). As the Examiner is aware, the question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). See also *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. at 1734, 82 USPQ2d at 1391. Further, the MPEP provides seven examples of rationales for establishing a *prima facie* case of obviousness. Should the Examiner utilize any other methodology to establish obviousness, a commensurate level of specificity is required.

The Applicant respectfully submits that the Examiner’s position relative to obviousness of independent claims 1 and 6 in the present application over the combination of Bank et al. in view of Kleyer et al. is deficient on numerous bases that violate the standards for establishing a *prima facie* case of obviousness set forth by *Graham*. Notably, the combination of Bank et al. and Kleyer et al. fails to teach each and every element of independent claims 1 and 6 of the present application. The Examiner has accurately

interpreted the teachings of Bank et al. as failing to teach a reaction in the presence of (D) an ether compound having no aliphatic triple bond. However, the Applicant respectfully submits that the Examiner has misinterpreted the teachings of Kleyer et al.

In particular, Kleyer et al. does not disclose a hydrosilylation reaction that encompasses the reactants of the present claims 1 and 6 in the presence of an ether compound having no aliphatic triple bond (denoted (D) in the present application). That is, Kleyer et al. does not disclose a diene-type compound (denoted (A) in the present application) and a hydrogenhalosilane (denoted (B) in the present application) reacted in the presence of a hydrosilylation catalyst (denoted (C) in the present application) and an ether compound having no aliphatic triple bond (denoted (D) in the present application), such as an allyl or vinyl ether. Rather, Kleyer et al. discloses reacting:

- a silicon hydride (denoted (A) in Kleyer et al.), and
- an unsaturated compound (denoted (B) in Kleyer et al.),
  - which may be an “oxygen containing olefinically unsaturated functional alkenyl compound” such as allyl and vinyl ethers (see column 5, lines 36 – 38 of Kleyer et al.),
- in the presence of a catalyst (C), wherein oxygen is added to the reaction mixture in controlled amounts (see claim 1 of Kleyer et al.).

The Examiner contends that Kleyer et al. discloses “...a method of controlling the reaction by using an oxygen containing gas,” and that, “Kleyer states that suitable oxygen containing gases include ethers such [as] the allyl and vinyl ethers.” The Applicant respectfully submits that column 5, lines 36-47 of Kleyer et al. describes “...suitable oxygen containing

olefinically unsaturated functional alkenyl compounds...such as allyl and vinyl ethers" as examples of unsaturated compounds (denoted (B) in Kleyer et al.). That is, the "suitable oxygen containing olefinically unsaturated functional alkenyl compounds" as examples of unsaturated compounds are reactants that actually participate in the reaction disclosed in Kleyer et al. and become part of the final product. Stated another way, Kleyer et al. discloses a hydrosilylation reaction comprising an ether as a reactant.

Therefore, importantly, the product of Kleyer et al. includes ether functionality when the allyl and vinyl ethers are used, whereas the presently claimed products, i.e., compounds (3) and (4), have no such ether functionality. Therefore, the final products of the present invention and Kleyer et al. are different. In summary, the Applicant respectfully submits that Kleyer et al. does not disclose a silicon hydride and an olefinically functional alkenyl compound reacted in the presence of a hydrosilylation catalyst and an allyl or vinyl ether. That is, the prior art does not include each element claimed. For this reason alone, the Examiner has failed to establish *prima facie* obviousness over the combination of Bank et al. and Kleyer et al..

Further, in *KSR*, the Supreme Court emphasized that "the principles laid down in *Graham* reaffirmed the 'functional approach' of *Hotchkiss*, 11 How. 248." *KSR*, 127 S.Ct. at 1739, 82 USPQ2d at 1395 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966) (emphasis added)), and reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.*

Notwithstanding the fact that the Examiner has failed to find each and every element of the claimed invention, a skilled artisan would not reasonably expect the ethers of the present invention to be useful for controlling a hydrosilylation reaction due to the unexpected results obtained in terms of the absence of undesirable reaction byproducts, improved reaction speed, and improved yield when the claimed ethers are used.

The Applicant respectfully submits that the differences between the present invention, as claimed in independent claims 1 and 6, and Kleyer et al. are not obvious to those of skill in the art at least because the present invention, by preparing a halosilylated chain hydrocarbon (3) or (4) in the presence of allyl or vinyl ethers, achieves results that are not predictable to one of skill in the art. That is, there is no recognition or expectation within the art in terms of the absence of undesirable reaction byproducts, improved reaction speed, and improved yield when the claimed ethers are used in the manner claimed. Neither Banks et al. nor Kleyer et al. do anything to counteract the Applicant's position that the results obtained through the present invention are unpredictable.

Further, the Applicant respectfully submits that a skilled artisan would not be motivated to use other ethers based on such factors as availability and cost as the Examiner contends. That is, neither Banks et al. nor Kleyer et al. provides any teaching whatsoever to direct a skilled artisan to the claimed ethers with an expectation of success, let alone a teaching based on availability and cost, and the Examiner has provided no evidence within the art to prove that other ethers (besides those taught by Banks et al.) could even be successfully used in the manner claimed.

In view of the foregoing, the Applicants respectfully submit that independent claims 1 and 6, as well as the claims that depend therefrom, are both novel and non-obvious over the prior art including over the combination of Bank et al. and Kleyer et al.. As such, the Applicants respectfully request that the rejections under 35 U.S.C. §103(a) over Bank et al. in view of Kleyer et al. are overcome and must, therefore, be withdrawn.

Applicant's attorney respectfully submits that the claims are now in condition for allowance and respectfully requests such allowance. This Amendment is timely filed; thus, it is believed that no fees are presently due. If any additional fees are necessary to respond to the outstanding Office Action, you are hereby authorized to charge such fees to Deposit Account No. 08-2789 in the name of Howard & Howard.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS**

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Date

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